

Curriculum Vitae (2023)

Batmanathan Dayanand (Daya) Reddy BSc(Eng) Cape Town, PhD Cantab, DSc *hc* Stellenbosch
Born 10 March 1953, Gqeberha (formerly Port Elizabeth), South Africa

University of Cape Town, South Africa
Professor Emeritus of Applied Mathematics
Vice-Chancellor *ad interim*

Email: daya.reddy@uct.ac.za

Education and academic positions

BSc (Eng) with first class honours, University of Cape Town (1973)
PhD in mechanics, University of Cambridge (1977)
Post-doctoral researcher, Department of Civil and Municipal Engineering, University College London (1978)
Lecturer, then Senior Lecturer, Associate Professor and Professor, University of Cape Town (1979–1989): jointly in Departments of Civil Engineering and Applied Mathematics, then Applied Mathematics
South African Research Chair in Computational Mechanics, University of Cape Town (2006–2021)
Professor Emeritus of Applied Mathematics (2021–), University of Cape Town

Honours and awards

1992	Fellow of the Royal Society of South Africa
1992	Fellow of the University of Cape Town
1996	Member, Academy of Science of South Africa
2002	Fellow, South African Academy of Engineering
2004	Fellow, Academy of Sciences of the Developing World (TWAS)
2004	National Order of Mapungubwe (Bronze)
2005	Member, Suid-Afrikaanse Akademie vir Wetenskap en Kuns
2006	Visiting Faculty Fellowship: The University of Texas at Austin, Institute for Computational Sciences and Engineering
2006	Fellow, African Academy of Sciences
2008	Fellow, International Association for Computational Mechanics (IACM)
2009	South African Association for Computational and Applied Mechanics Award, Distinguished Service
2009	Timoshenko Visiting Scholar, Stanford University
2009	African Conference on Computational Mechanics Award for Outstanding Research
2012	Georg Forster Research Award of the Alexander von Humboldt Foundation, Germany and Visiting Professor, Leibniz University of Hanover (Germany) (periods of a few months during 2013–2016)
2016	South African Mathematical Society Award for Research Distinction
2016	Founding Fellow, Academy of Engineering and Technology of the Developing World
2021	Degree of Doctor of Science, honoris causa, University of Stellenbosch, South Africa
2022	Fellow, International Science Council (ISC)

Selected leadership positions at the University of Cape Town

Vice-Chancellor *ad interim* (March 2023 –)
Director, Centre for Research in Computational and Applied Mechanics (CERECAM) (1999–2021)

Dean, Faculty of Science (1999–2005)
Head, Department of Applied Mathematics (1989–1994)
Deputy Vice-Chancellor, acting (2002, 2008 and 2017: periods of between five months and a year)

Leadership positions at national level

President, Academy of Science of South Africa (2012–2016)
Stellenbosch Institute for Advanced Study (STIAS): Academic Advisory Board (2013–2021)
Board of the South African National Research Foundation: Board member (1999–2001) and Board chair (2002–2008)
Centre for High Performance Computing (CHPC) Management Committee and Advisory Committee member (2005–2010)
Member, South African National Committee for the International Union of Theoretical and Applied Mechanics (IUTAM) (1996–2003) and South African National Committee for the International Union of Mathematicians (IMU) (1993–2000)
African Institute for Mathematical Sciences: Founder Council member (2003 to date) and Council chair (2017–2021); trustee of the AIMS Trust (2003 to date)

Leadership positions at international level

African Open Science Platform (AOSP): member of the Governing Council (2022–)
Alexander von Humboldt Foundation, Germany: International Advisory Board member (2018–) and chair (2022–)
International Science Council: President (2018–2021)
International Astronomical Union, Office for Astronomy Development (OAD), Steering Committee member (2022–)
African European Mediterranean Academies for Science Education (AEMASE) and CESAME (Centre for Education to Science in Africa, the Mediterranean and Europe): Scientific Committee member (2019–)
International Council for Science (ICSU): President-elect (2014–2017), then Officer of the Executive Board (2017–2018)
InterAcademy Partnership (IAP): steering committee member and co-chair, Policy (2013–2019)
Centre International des Sciences Mécaniques (International Centre for Mechanical Sciences (CISM)): Board of Directors (2015–2021)

Research interests

Theoretical and computational work in solid mechanics, most notably plasticity
Mathematical analyses including variational formulations and studies of their well-posedness
Development and implementation of algorithms and studies of their convergence
Finite element analysis: development of new mixed and related methods, extensions of existing methods, analysis of convergence
Other areas of application include biomedical mechanics and aspects of viscoelastic fluids.

Publications and editorial activities

Author or co-author of over 200 publications, including four books and three edited volumes of invited papers
Membership of the editorial boards of 10 journals, service as a reviewer of book manuscripts for Springer (New York and Berlin), and a regular reviewer for more than 20 journals

Postgraduate students and postdoctoral researchers

Supervision to graduation of 33 PhD and 36 research masters graduates, as well as 20 post-doctoral researchers

Around half of the masters graduates have gone on to doctoral and postdoctoral study, and half of that group have gone on to careers in academia. By far most of the other members of the masters group have gone on to successful careers in research and development, and the development of commercial or research-related finite element software, which is extensively used in design in aeronautical, mining, and a range of other industries.

Of the group of PhD graduates, around two thirds embarked on careers in academia. Among this group can be counted three professors and a current dean.

The group of postdoctoral researchers includes those, the majority, who went on to careers in academia. The earlier members of this group have advanced to occupy senior positions, three of these at professorial level. Many have made their mark at their universities in South Africa, other African countries, the UK and China. Other postdoctoral researchers have embarked on successful careers in research laboratories or in the private sector where they have advanced to leadership positions in the development of specialist software.

Selected plenary, keynote and invited presentations in mechanics and applied mathematics

- 2014 International Congress of Mathematicians (ICM), Seoul, Korea : Invited Sectional 45-minute lecture
- 2014 International Conference on Computational Methods in Applied Mathematics, St. Wolfgang, Austria
- 2016 1st International Conference on Emerging Trends in Applied Mathematics and Mechanics, Perpignan, France
- 2017 1st BRICS (Brazil, Russia, India, China, South Africa) Mathematics Conference, Beijing, China
- 2018 2nd International Conference on Emerging Trends in Applied Mathematics and Mechanics, Krakow, Poland
- 2019 7th International Conference on Mathematical Modelling and Computational Methods in Applied Sciences and Engineering, Olomouc, Czech Republic
- 2019 2nd Conference on Computational Modelling of Complex Materials across the Scales, Glasgow, UK
- 2022 10th Pan African Congress of Mathematicians (PACOM 2022), Brazzaville, Republic of Congo

Invited and keynote lectures, presentations and related contributions to the promotion of science and public policy, and science diplomacy

- 2013 World Science Forum, Rio de Janeiro
- 2012 and 2013 International Conference on Science and Technology for Sustainability and Colossal Multiple Disasters, Science Council of Japan, Tokyo
- 2014 Humboldt Colloquium “The power of excellence in science – enhancing academia capacities in Africa”, Nairobi, Kenya
- 2015 Alexander von Humboldt Foundation, 9th Forum on the Internationalization of Sciences and Humanities, Berlin
- 2016 2nd International Conference on Science Advice to Government, organized by the International Network for Government Science Advice (INGSA) and the European Commission, Brussels
- 2017 World Science Forum, Dead Sea, Jordan
- 2017 UN Environment: Science-Policy-Business Forum, Nairobi
- 2018 3rd International Conference on Science Advice to Government, organized by INGSA, Tokyo
- 2019 World Conference on Science Literacy, Beijing, China
- 2021 3rd SDG Conference, Bergen, Norway
- 2022 Annual International Conference on Impact of Science, Leiden, The Netherlands